

STELLAR MAP OF NEOLITHIC MAN

Yu. P. Pskovskiy

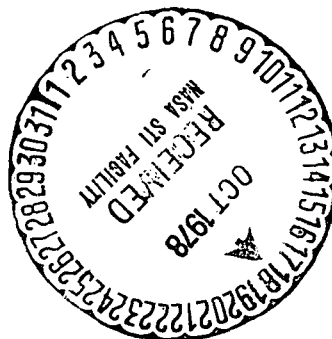
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16. Abstract Observations made by ancient man are of great interest to present day astronomers. Drawings made by neolithic man in caves show a surprising sense of perspective. The discoveries in the Fern Grotto in California are of especial interest. Photographs of cave drawings are included.			
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STELLAR MAP OF NEOLITHIC MAN

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The interest in describing brilliant celestial phenomena which occurred in deep antiquity, that is, in information occasionally retained for us over the centuries and millenia, is a significant feature in modern astronomy. The information on such observations can significantly correct our theoretical and practical conclusions. For example, an analysis of fixed observations of hundreds of comets for a time calculated at about 5000 years ago can significantly broaden our concepts of brilliant periodic comets similar to Halley's comet. This material awaits serious treatment and its prospects are alluring.

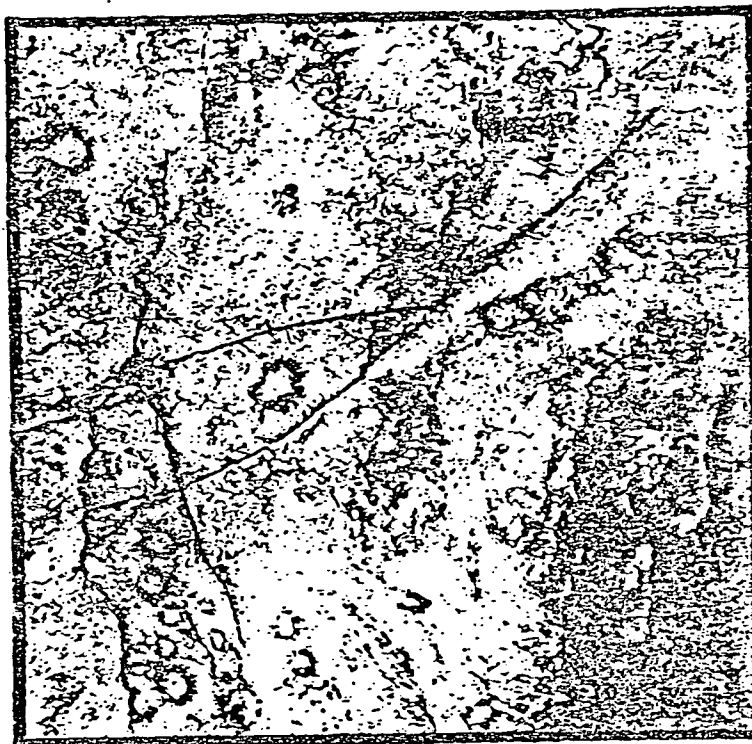
Another example. In ancient chronicles there are descriptions of brilliant flashes of stars which undoubtedly were supernova stars. One sometimes encounters contradictions in the rare detailed descriptions. In a Japanese chronicle, for instance, a star was described as white or deep blue, and in the Chinese, it was recalled as yellow (that, by the way, was considered very favorable for the royal house). Contradictions in evaluating the color of stars and "evident servility" of court astronomers cast large doubts on the precision of the description of color in these chronicles and cast a shadow on the correctness of the other information. However, as is now clear, the supernova actually in the first days of its appearance has a white deep blue color corresponding to their very high surface temperature in this period and then they gradually turn yellow and even become a reddish yellow; but then their temperature again begins to increase and they again become yellower and whiter. Thus, a description of the color of stars by observers in ancient times awaits full exoneration.

*Numbers in the margin indicate pagination in the foreign text.

There is still more alluring information which can be retained from the stone age. The discussion again is on supernova stars. The sensational discovery of pulsars, and again some of these can grow for thousands and tens of thousands of years, present us with the problem of searching for information from long ago of brilliant flashes comparable in brightness to a full moon. Such flashes could have been noted by man in the stone age. If drawings of the sky made at that time were found and their dates were supported by archeological and carbon dating methods, astronomers could establish how much one should correct the modern theories of pulsars and how much the scale of their growth should be changed while the rate for slowing rotation of the pulsars could be determined.

This "cherished landmark" of astronomers was expressed in 1971 by the Americans, G. Brandt, S. Maran, et al. They expect that rock drawings with images of stars and bright flashes will be found in the end. I hope for their success in establishing the rock drawings already found, apparently, connected to the flare of the Supernova in the Telets constellation which /29 left after itself the Crab nebula and an optical pulsar. A discussion of these searches and decipherings is the subject of a separate article and here we will only consider one drawing of astronomical character found by Brandt in Northern California in the National Lava Preserve in the so-called Fern Grotto.

The possible time this drawing was made, evaluated by a carbon dating method according to the coal residue of the site in the grotto, is 803 \pm 160 A.D., however, the signs of habitation of the grotto would relate to about 1500 B.C. Unfortunately, the soot of the "surface finish" of the drawing was not studied with a carbon dating method. However, in other regions of the earth's globe, the ninth century was already a century of written descriptions for Indians. The Neolithic age had already opened for North America.

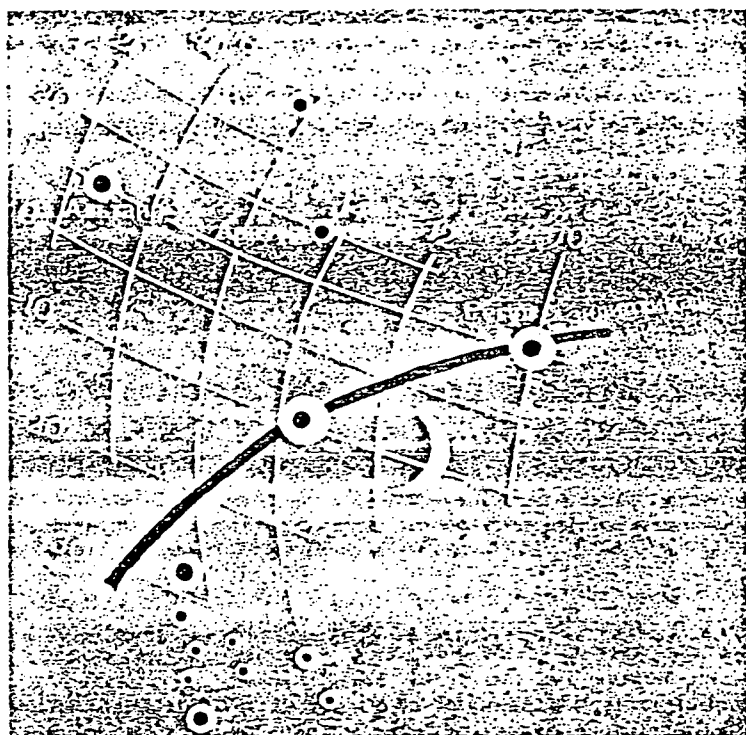


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Brandt and his colleagues, in a book entitled Archeo-astronomy in Pre Columbus America (1975) presents a photograph of this drawing which contains a star and the Moon. They put forward a proposal that here as in similar stone drawings in Arizona, an approximation of the Moon with a Supernova in the Telets was shown which occurred in 1054. However, the drawing is distinguished by a much more complex composition. Its analysis, in our view, is very important for evaluating the information which one can expect from our neolithic "correspondents".

If one proposes that the circles cut on the wall of the cave are stars and that the artist has shown the position of the Moon between them, it will be natural to correlate these stars with very bright stars near eclipses close to which the visible path of the Moon occurred in the heavens, that is, with Regulus, Spika and Antares. These brightest stars, apparently, caught the attention of the ancient stonemen. Above these there are stars of the primary size, Arcturus and Vega. It is also easy to

discover them on the "chart" of the heavens inscribed in the Fern Grotto. However, this is only hypothetical. However, having taken a modern chart of the heavens and according to it, having noted on the drawing a grid of equatorial celestial coordinates, we discover with surprise that the ancient artist was very precise and that he showed the celestial heavens with an astonishing sense of perspective. Only the stars located below the Antares do not have a definite identification; it is obvious that the stellar "background" is horizontal to the south.



The celestial heavens on a rock slab in the Fern Grotto (California, USA) and a grid of celestial coordinates laid out according to identified stars of this drawing. It is apparent that the ancient artist showed the very bright stars of this section of the sky almost without distortion.

As to the Moon, its crescent shape attests to the fact that this new Moon is two to three days after the new moon. Close to the point of the fall equinox, lying between Regulus and Spika, the Moon in this phase is annually at the beginning of August.

Such information is obtained from the ancient stone chart. It makes it possible to consider that primitive people were fairly naturalistic in their drawings and therefore the information on rock walls is precise and detailed, that is, it can be fully used in modern astronomical studies.

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